federal register

Thursday
May 10, 1979

Part V

Department of Housing and Urban Development

Office of the Secretary

Cost-Effective Energy Conservation Standards

HOUSING AND URBAN DEVELOPMENT

Office of the Secretary

24 CFR Part 39

Cost-Effective Energy Conservation Standards

AGENCY: Office of the Secretary, (HUD).

ACTION: Interim rule.

SUMMARY: The Secretary is prescribing cost-effective energy conservation and efficiency standards for certain HUD programs and is inviting public comment on these standards before they become effective. With the exception of one program in which the Secretary has determined that these standards are needed as a matter of policy, adoption and implementation of the standards are required by recently enacted legislation.

COMMENT DUE: June 11, 1979.

EFFECTIVE DATE: July 9, 1979.

FOR FURTHER INFORMATION COATACT: Joseph Sherman, Director, Division of Energy, Building Technology and Standards Research, Office of Policy Development and Research, (202) 755–6443 or Duane Keplinger, Acting Director, Office of Architecture and Engineering Standards, Office of Housing, (202) 755–5718, Department of Housing and Urban Development, 451 Seventh Street, S.W., Washington, D.C. 20410.

SUPPLEMENTARY INFORMATION: The Housing and Community Development Amendments of 1978, 42 U.S.C. 1425(b) et seq., Pub. L. 95–557 (1978 Amendments) require the Secretary to prescribe cost-effective energy conservation and efficiency standards governing improvements and rehabilitation in four HUD programs. In addition, the Secretary has determined as a matter of policy that the standards are needed in a fifth program to assure conservation of energy resources. Thus, the standards, which are set forth as an Appendix to this rule, will apply to (1) rehabilitation loans under Section 312 of the Housing Act of 1964 (see Section 101(a)(7) of the 1978 Amendments); (2) rehabilitation loans under Section 203(k) of the National Housing Act (see Section 101(c)(1) of the 1978 Amendments); (3) Federal financial assistance for troubled multifamily housing projects (see Section 201(d)(6) of the 1978 Amendments); (4) Federal financial assistance for substantial rehabilitation projects under Section 8 of the United States Housing Act of 1937 (see Section 206(d)(1) of the 1978 Amendments); and (5) Federal financial assistance for moderate rehabilitation projects under Section 8 of the United States Housing Act of 1937 (Secretary's policy determination).

The Secretary has determined that the standards are urgently needed and must be adopted 60 days after publication since the 1978 Amendments prohibit Section 312 Rehabilitation loans after July 27, 1979, covering work which does not conform to the standards. Hence, the Section 312 program cannot continue unless these standards have been adopted in sufficient time to acquaint participants adequately with the cost-effective energy provisions by that date. Furthermore, the program under Section 203(k) of the National Housing Act cannot be effectively implemented until the standards have been adopted. The 1978 Amendments also require expedited implementation of the Standards for the Section 8 Substantial Rehabilitation Program and Troubled Multifamily Housing Assistance Program.

Before adopting the standards, the Secretary is providing 30 days for submittal of public comments. If as a result of comment, the Secretary determines that change in the standards is appropriate, their effectiveness will be deferred by publication in the **Federal Register.** Otherwise, unless deferred by such publication, the standards will become effective without notification by the Secretary 30 days after the close of the period allowed for public comment, that is 60 days after publication of this document. Interested parties are invited to participate in this rulemaking proceeding by submitting relevant comments and suggestions to the Rules Docket Clerk, Office of the General Counsel, Department of Housing and Urban Development, 451 Seventh Street, S.W., Washington, D.C. 20410. A substantive response will be provided as to each comment received through a notice published in the **Federal Register** or by mail.

The Secretary has determined that this amendment does not affect the quality of environment and a statement to that effect has been prepared. This statement is available for inspection and copying in the Office of the Rules Docket Clerk at the above address.

The legislative review provisions of Section 7(o) of the Department of HUD Act, 42 U.S.C. 3535(o) have been met.

Accordingly Subtitle A is amended by adding a new Part 39 to read as follows:

PART 39—COST-EFFECTIVE ENERGY CONSERVATION AND EFFECTIVENESS STANDARDS

Sec.

39.1 Title and purpose.
39.3 Authority.
39.5 Scope.
39.7 Standards.
Appendix I Cost-Effective Energy Efficiency (Conservation) Standards for Rehabilitation of Residential Properties

§ 39.1 Title and purpose.

The purpose of this Part is to set foirth cost-effective energy conservation and efficiency standards applicable to HUD programs.

§ 39.3 Authority.

This Part implements the provisions of the Housing and Community Development Amendments of 1978. 42 U.S.C. 1425(b), et seq., Pub. L. 95–557.

§ 39.5 Scope.

The standards apply to the following programs:

(a) Rehabilitation loans under Section 312 of the Housing Act of 1964.

(b) Rehabilitation loans under Section 203(k) of the National Housing Act.

(c) Operating assistance for troubled multifamily housing projects under Section 201 of the Housing and Community Development Amendments of 1978.

(b) Financial assistance for substantial rehabilitation projects under Section 8 of the United States Housing Act of 1937.

(e) Financial assistance for moderate rehabilitation projects under Section 8 of the United States Housing Act of 1937.

§ 39.7 Standards.

The standards are set forth in detail in the Appendix to this Part.

Appendix

Cost-Effective Energy Efficiency (conservation) Standards for Rehabilitation of Residential Properties

A–1. *General.* (a) These standards provide the mandatory levels of various energy-efficiency features that are considered as cost-effective in the rehabilitation of residential properties. The material is arranged to give consideration to local climatic conditions and fuel prices in determining the measures to be used.

(b) It is realized that not all of the requirements can be followed in all situations due to existing building conditions and funds available.

A–2. *Application.* (a) It is the intent of these standards to apply only to those improvements proposed as part of the

rehabilitation, except those listed in A–3 below. If new material or construction is contemplated, conformance to these standards is mandatory for these features.

(b) It is not the intent to require thermal improvement of construction elements which would not ordinarily be made accessible or become exposed during the rehabilitation.

(c) The requirements contained herein must be applied judiciously. Any one or more of the requirements may be eliminated to the extent they are not practical in rehabilitation situations, considering economic feasibility, program needs and the materials and type of construction involved. (Example: The use of the following Tables for a structure of 1500 square feet located in an area of 4200 degree days with a fuel cost of 4 cents per Kwh for electricity, would require R–30 ceiling insulation for certain programs. If the structure presently had no ceiling insualtion, the savings in fuel cost would be approximately $1000 per year after adding the R–30 insulation. However, if the present ceiling contained R–19 insulation, improvement to R–30 would result in an annual reduction in fuel cost of only $170.) The reduced operating cost must be weighed against the amortization cost for the improvements to determine cost-effectiveness for the specific program terms. (The energy estimating methods contained in Chapter 43 of the 1976 Systems Handbook of the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. were used in preparing the above comparison.)

A–3. *Additional Criteria.* (a) In addition to the measures shown in the Tables, the following shall apply to those structures which are not subjected to the energy audit procedures described in (b) below: (1) Doors and windows shall be weatherstripped to reduce infiltration of air when weatherstripping is inadequate or nonexistent.

(2) Caulk, gasket, or otherwise seal all openings, cracks, or joints in the building envelope when existing materials are inadequate. Replace all loose or brittle caulking with new elastomeric material. Leave bottom edge of siding uncaulked to allow moisture drainage.

(3) Replacement heating, ventilating and airconditioning (HVAC) system supply and return pipes and ducts shall be insulated whenever they run through unconditioned spaces. Pipe insulation shall be R–2 or greater, and duct insulation shall be R–4 or greater. Duct seams shall be tightly sealed to reduce air leakage.

(4) Replacement heating systems, burners and airconditioning systems shall be of high-efficiency design, and should be carefully sized to be no greater than 15% oversize for the critical design, hearing or cooling, except to satisfy the manufacturers' next closest nominal size.

(b) For mid-rise and high-rise structures and for many low-rise multifamily projects an energy audit must be carried out to identify and specify the energy and cost savings which are estimated to result from installing or accomplishing an energy conservation measure. All measures determined to be cost-effective, given the loan time and rate and in accordance with paragraph A–2 shall be accomplished. Amortization cost of improvements must be offset by reduced operating costs attributable to the improvements. Generally, assistance in conducting energy audits is available through local supplies, energy officials and utility companies. The energy audit shall cover all of the following energy conservation measures, to the degree feasible, except those that are not appropriate for the building types or equipment:

Installation of individual utility meters or checkmeters
Ceiling insulation
Insulation of hot water and steam pipes
Insulation of heating and cooling ducts in unheated spaces
Caulking and sealants in building joints
Weatherstripping doors and windows
Clock thermostats for units with individual heating units
Storm windows or replacement of single glazed windows with double glazed windows
Flow restrictors for hot water lines to shower heads or faucets
Thermostatic radiator valves
Replacement of incandescent fixtures in public spaces with higher efficiency lighting
Exterior insulation for water heaters located in unheated spaces
Improved burners, controls, capacitors and other improvements to mechanical systems which will lower fuel consumption or energy costs

A–4. *Use of Table 1.* In order to use the recommendations shown in Table 3, the Heating Index must be determined from Table 2. If the structure is mechanically cooled, the Cooling Index must also be selected from Table 2. In order to choose a Heating Index and a Cooling Index from Table 2 it is necessary to identify the appropriate reference column number. Table 1 presents those column reference numbers. At the top of Table 1 are unit prices for oil, gas, and electricity (electricity prices apply to resistance electric heating and air conditioning only) expressed in cents per gallon, per therm, and per Kwh, respectively. The costs used in choosing the proper reference column number should be the marginal cost—the cost of the last unit of fuel purchased in the heating or cooling season—and should include all taxes and fuel adjustment charges. Choose reference column numbers for the Heating Index by selecting the reference number directly below the fuel costs in the row representing the financing terms to be used. Similarly select a Cooling Index reference column by noting the number in the row of the applicable financing terms that is directly below the unit price of cooling energy. When fuel costs exceed those shown in the Table, use the last column on the right of the Table.

A–5. *Table 2—Selection of Heating and Cooling Indices.* At the top of Table 2 are column reference numbers. Along the left side of Table 2 are Degree Days for heating and Cooling Hours for cooling. The Heating Index is derived by reading down the correct reference column and across for the applicable Degree Day entry. The point of convergence indicates the Heating Index. The reference column for cooling and the Cooling Hours are used in the same manner to determine the Cooling Index.

A–6. *Table 3—Selection of Recommended Measures.* The levels of protection are determined by reading horizontally across the Table from the Heating Index shown on the left side of the Table. For ceiling insulation the applicable Colling Index column must be used with the appropriate Heating Index. If mechanical cooling is not contemplated, use the column for Cooling Index 1.

BILLING CODE 4210-01-M

Table 1

FUEL PRICES AND REFERENCE COLUMNS FOR HEATING AND COOLING INDICES

	FUEL PRICES										
Oil (c/Gallon)	29	33	37	42	46	51	55	64	73	82	91
Gas (c/Therm)	23	26	29	33	36	40	43	51	58	65	72
Electricity (c/Kwh)	1.6	1.8	2	2.3	2.5	2.8	3.0	3.5	4.0	4.5	5

(1) FINANCING TERMS

	REFERENCE COLUMNS										
15 yrs @ 11 1/2 % or 10 yrs @ 5%	1	2	2	3	4	5	5	6	7	8	8
30 yrs @ 9 1/2% or 40 yrs @ 9 1/2%	1	2	3	4	5	6	7	8	9	10	11
20 yrs @ 6% or 40 yrs @ 7 1/2% or 40 yrs @ 8%	1	2	3	5	6	7	8	9	10	11	11
20 yrs @ 3%	1	3	4	6	7	9	10	11	11	11	11

(1) To determine the appropriate Reference Column for financing terms with rates or terms not shown, interpolate between the above Reference Columns. Use next higher reference column if interpolation yields a result between columns.

Table 2
HEATING AND COOLING INDICES

REFERENCE COLUMN	1	2	3	4	5	6	7	8	9	10	11

HEATING INDEX

DEGREE DAYS (1)											
500 - 1500	A										
1501 - 2500											
2501 - 3500			B								
3501 - 4500											
4501 - 5500					C						
5501 - 6500						D					
6501 - 7500											
7501 - 8500							E				
8501 - 9500								F			
9501 and above										G	

COOLING INDEX

COOLING HOURS (1)											
100											
300		1									
500											
700											
900				2							
1100											
1300						3					
1500											
1700							4				
2000								5			
2200										6	
2500											

(1) Degree Day and Cooling Hour information is available in the ASHRAE Systems Handbook, from local weather stations and from local utility companies.

TABLE 3
INSULATION: R VALUES

Heating Index	CEILINGS(1) Cooling Index 1	2	3	4	5	6	WALL (2) (3)	FLOOR Over Unheated Spaces	GLASS No. of Layers	STORM DOOR OR THERMAL DOOR
A	R-19								1	No
B		R-26					R-11 to R-13	0	1	No
C				R-30				R-11	2	No
D					R-38				2	No
E									3(5)	No(6)
F							(4) R-13		3(5)	No(6)
G								R-19	3(5)	Yes(7)

Notes to Table 3 on next page.

BILLING CODE 4210-01-C

Notes to Table 3

(1) The addition of insulation to ceilings which presently contain insulation may not be cost-effective. If the additional insulation needed to conform to the recommendations is less than R–19, benefits are doubtful. (See example in A–2(c).)

(2) For frame construction, the R value of sheathing may be included in the insulation R value of walls.

(3) Required only when wall covering, interior or exterior, is removed and an adequate vapor barrior is applied. (When the existing wall contains any amount of insulation, additional insulation applied by blowing or pouring is not recommended.)

(4) Extra insulation, up to R–19, is recommended where practicable under the conditions of Note (3) above.

(5) Three layers of glass not typically cost-effective unless existing windows are double glazed or complete replacement of sash is contemplated. If replacing sash, should have insulating frames.

(6) Storm doors or thermal doors recommended if primary door is hollow-core or is over 25 percent glass.

(7) Applicable only to individual living unit doors opening directly to the exterior.

(Section 7(d) of the Department of Housing and Urban Development Act 42 U.S.C. 3535(d))

Issued at Washington, D.C. April 6, 1979.

Patricia Roberts Harris,

Secretary of Housing and Urban Development.

[Docket No. R–79–642]

[FR Doc. 79–14592 Filed 5–9–79; 8:45 am]

BILLING CODE 4210–01–M